



TURBINE BUSINESS UNIT PRESENTATION



1 - PRESENTATION

Ram Power S.r.l. has more than 20 years in Oil&Gas and Power Generation industrial sectors.

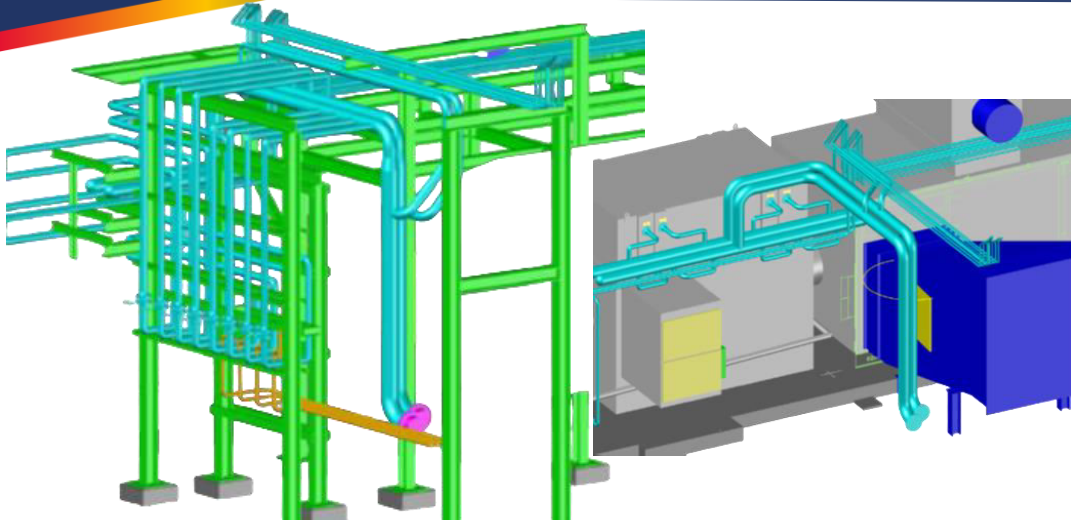
It is partner of the major Turbine manufacturer and leaders, and it is proud to present its new Business Unit:

Ram Power **TURBINE SOLUTION & SERVICES** has been growing to provide Specialized and Professional Assistance/Maintenance and perform Mechanical - Electrical Installation up to Cold commissioning in Turn-Key formula of Gas Turbines, Steam Turbine, Compressor and Generators providing also Hot Commissioning Assistance.

New fields applications have been implemented to satisfy Customer requests, all of them developed according to client contract and applicable laws :



2 – SERVICE AND SOLUTION



MECHANICAL AND ELECTRICAL DETAILED ENGINEERING
 PIPE & CABLE ROUTING
 STRUCTURAL AND SUPPORT ENGINEERING
 CABLES SEGREGATION HOOK UP E&I
 STRESS ANALYSIS
 BILL OF QUANTITY
 GENERAL ARRANGMENT



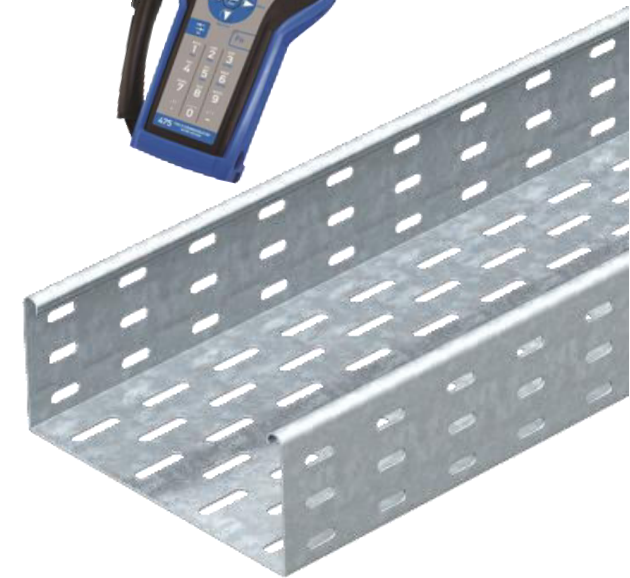
QUALITY DOCUMENTATION – FINAL DOSSIER CERTIFICATION :

- WELDING DOSSIER ACCORDING TO ASME – PED – EN15614 – AD2000HP – AWS
- D1.1
- EN ISO 9001:2005
- EN ISO 14001:2005
- EN ISO OHSAS 18001:2007
- EN ISO 45001
- EN 3834 – AD2000
- EN 1090-1
- Certified to assembly and test Electrical Panel MCC-Power center up to 10KW
- Certified to assembly and test Control Panel UPC-DCS up to S.I.L.3
- Certified to MV – LV installation
- Certified to Instrument calibration
- Certified Swagelok and Parker compression fitting
- Quality control plan issuing and final certification



SUPPLY MATERIAL AND PREFABRICATION

- MECHANICAL AND ELECTRICAL COMPONENTS
- PIPING & FITTING PREFABRICATION AND SUPPLY
- CARPENTRY AND STRUCTURE PREFABRICATION AND SUPPLY
- SUPPORTS PREFABRICATION AND SUPPLY
- CABLES & CABLE GLAND & ACCESSORIES
- CABLES TRAYS
- ELECTRICAL AND CONTROL PANEL PREFABRICATION AND SUPPLY



DEVICES AND RENTAL TOOL
TOOL CONTAINER MECHANICAL AND ELECTRICAL RENTAL
LIFTING DEVICES RENTAL
SKIDDING SYSTEM SOLUTION
OIL FLUSHING SKID FILTERING PUMP
WATER FLUSHING SKID FILTERING PUMP
WATER AND AIR HIGH PRESSURE PUMP
EASY LASER ALIGNMENT
CALIBRATION TOOL
MEGGERING SYSTEM



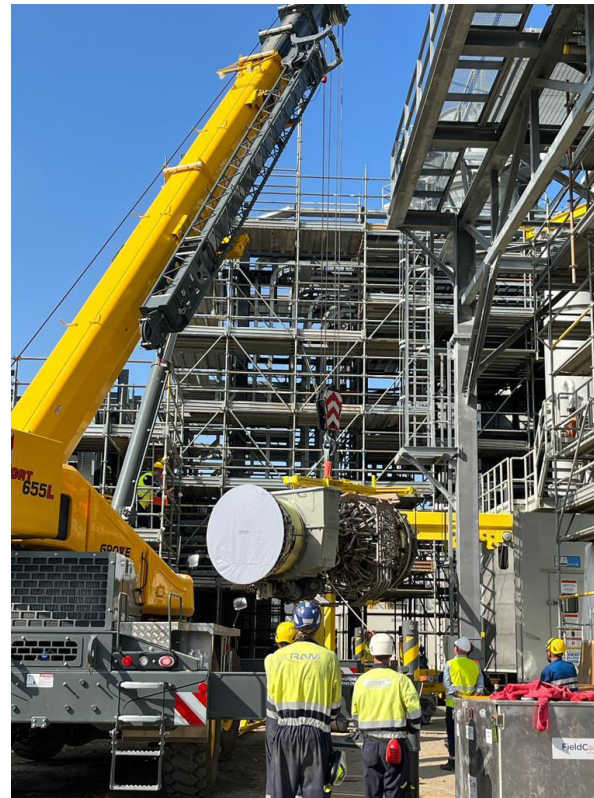
4 - PROJECT EXPERIENCES

RAVENNA (Italy) – ENI POWER PEAKER

Mechanical and Electrical assistance for the installation of 11 x LM6000 Aero-derivative gas turbines



TURBINE
PREPARATION



LIFTING
OPERATIONS



POSITIONING & ALIGNMENT

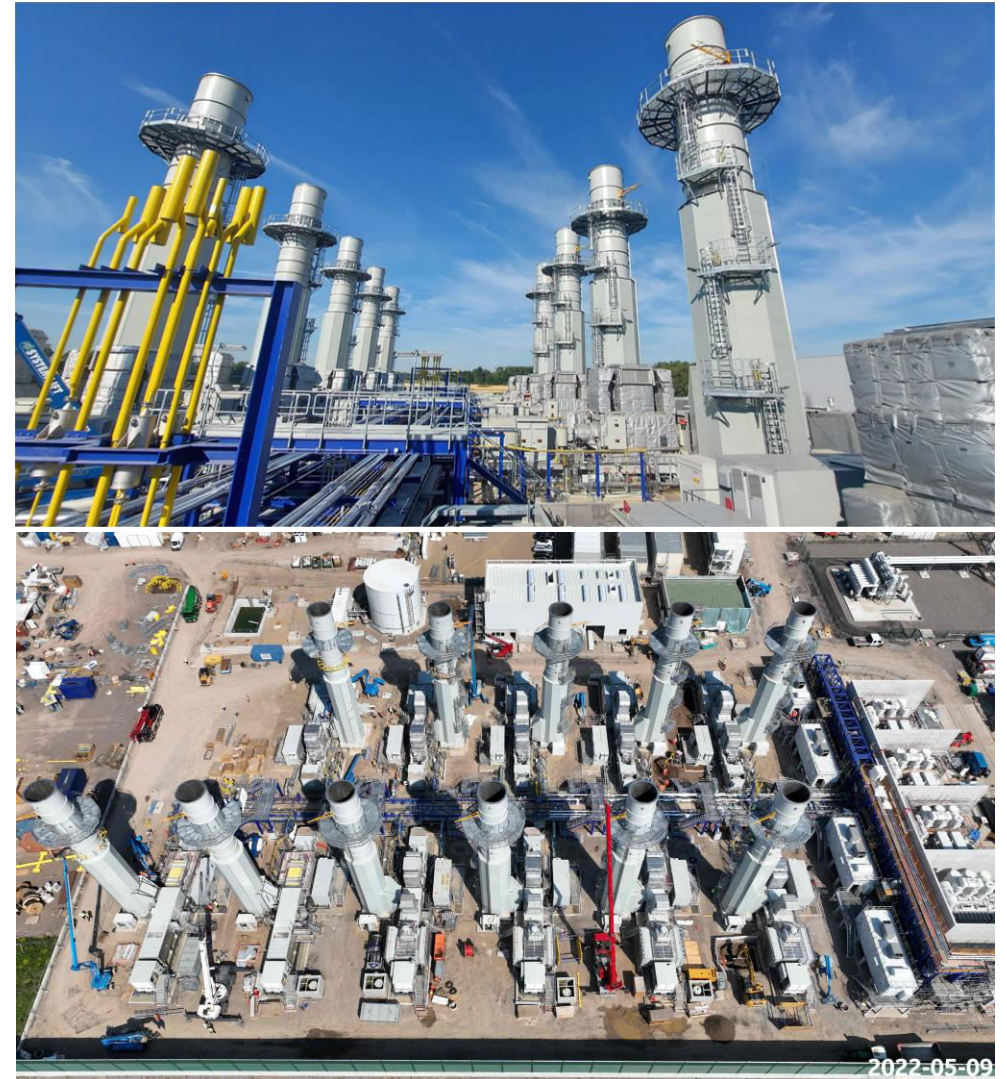
BIBLIS (Germany) – RWE PEAKER
Mechanical and Electrical installation of 11 x LM2500Xpress
Aeroderivative gas turbines (+450MW peak plant)



ENGINE LIFTING
OPERATIONS

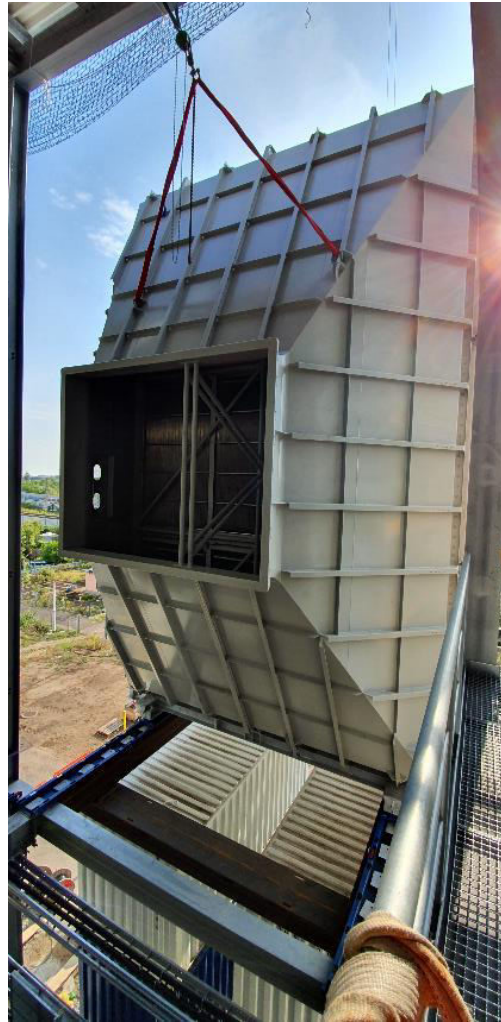


STACK
ERECTION



RWE GASTURBINEKRAFTWERK PLANT OVERVIEW

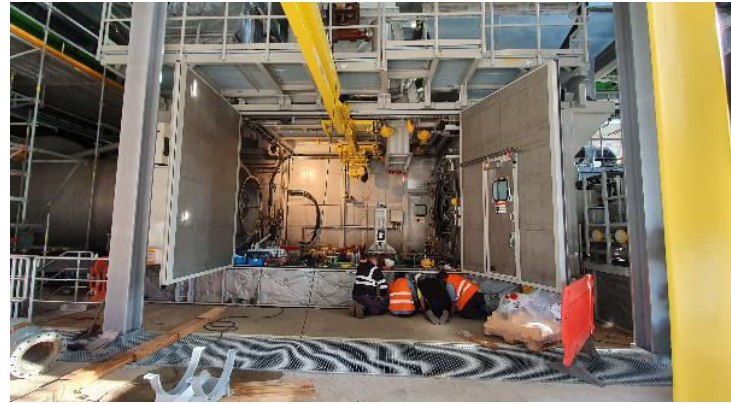
HALLE (Germany) – LM6000 INSTALLATION – Turn Key



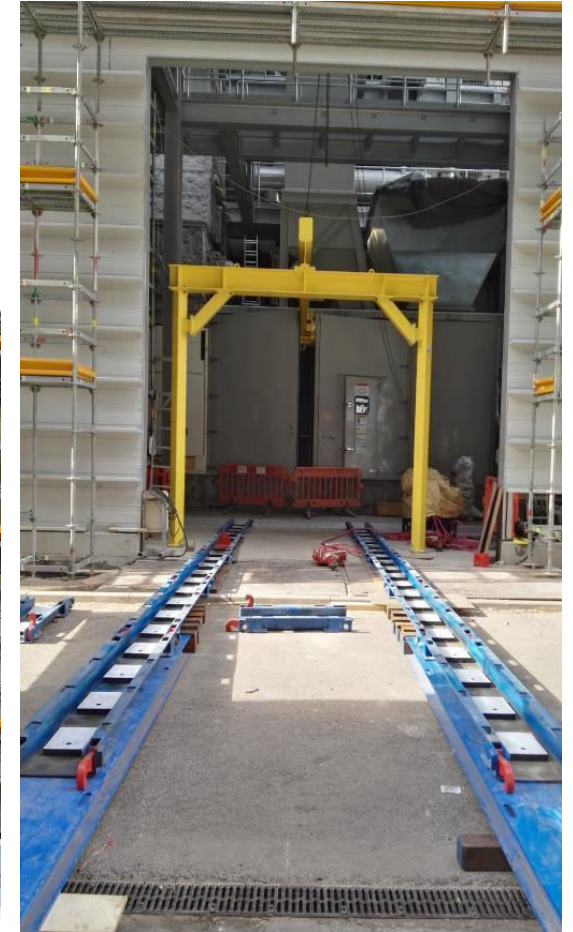
Filter House Sliding by Oil Hydraulic Skidding System & Duct Installation



HALLE (Germany) – LM6000 INSTALLATION – Turn Key



Hydraulic Oil Skidding System for Turbine installation inside the Enclosure



NUOVO PIGNONE-GE POWER - ENI POWER BOLGIANO (Italy) LM6000+BRUSH GENERATOR



LM6000 + BRUSH GENERATOR INSTALLATION

SUPPLY AND ENGINEERING OF:

- VENTILATION DUCT ESTENSION
- INTERCONNECTION PIPING
- CABLES TRAY AND CABLE SEGREGATION
- ELECTRICAL HOOK UP



TURN KEY INSTALLATION OF:

- EQUIPMENT
- DUCT
- PIPING
- CABLES TRAY
- CABLES LAYING
- PANELS
- TEST AND CERTIFICATION



GE POWER – ORADEA (Romania) LM6000+BRUSH GENERATOR

LM6000 + BRUSH GENERATOR INSTALLATION

SUPPLY AND ENGINEERING OF:

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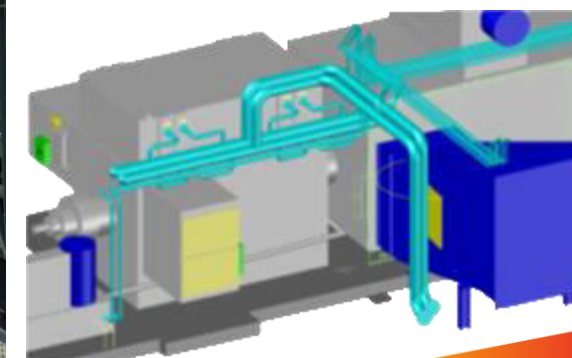
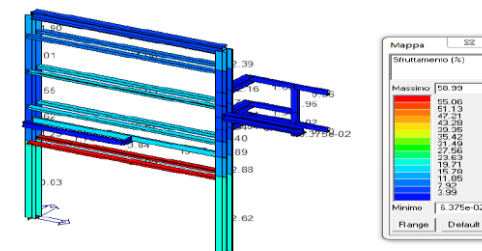
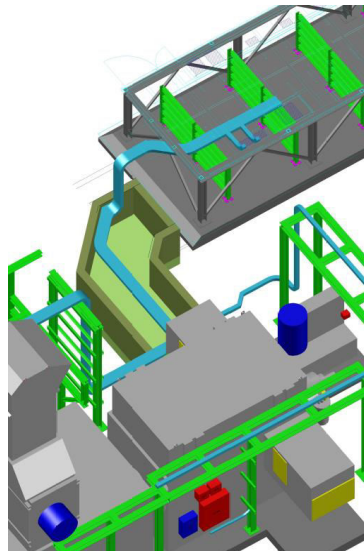
GE POWER – SPINETTA SOLVAY (Italy) – LM2500+BRUSH GENERATOR

SUPPLY AND ENGINEERING OF:

- INTERCONNECTION PIPING
- CABLES TRAY AND CABLE SEGREGATION
- ELECTRICAL HOOK UP
- WALKWAY AND LADDER

TURN KEY INSTALLATION OF:

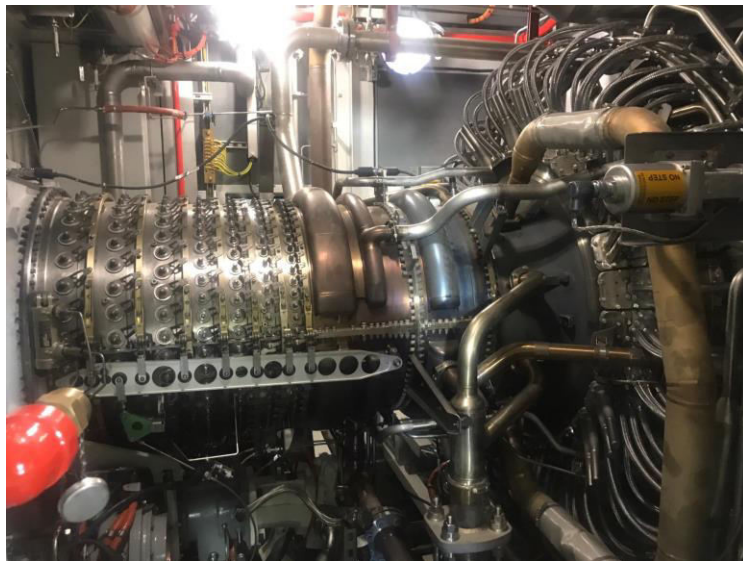
- EQUIPMENT
- DUCT
- PIPING
- CABLES TRAY
- CABLES LAYING
- PANELS
- TEST AND CERTIFICATION



GE OIL&GAS – MINERBIO BOLOGNA (Italy) – PGT25 – GAS COOLER

TURN KEY INSTALLATION OF:

- EQUIPMENT
- DUCT
- BUILDING
- GAS COOLER
- PIPING
- CABLES TRAY
- CABLES LAYING
- PANELS
- TEST AND CERTIFICATION



MARGHERA (Italy) - EDISON - General Electric Removal 2xFRAME 9E and replaced with 2xLMS100



BUSSI SUL TIRINO (Italy) – EDISON

Woodgroup and General electrical removal 1xFRAME 9E and replaced with 1xLMS100



WURSELEN COMPRESSION STATION - ZEELINK PROJECT (Germany)
Integrated compression unit ME01-ME02-ME03
3UNIT x 13MW ICL 503 packages Including auxiliary systems



COOLING SYSTEM AND SHELTER



ICL COMPRESSOR LIFTING



STEP UP TRANSFORMER AND SHELTER



ICL COMPRESSOR SLIDING SYSTEM

WURSELEN COMPRESSION STATION - ZEELINK PROJECT (Germany)
Integrated compression unit ME01-ME02-ME03
3UNIT x 13MW ICL 503 packages Including auxiliary systems



PROCESS AREA – ACTUATED VALVES



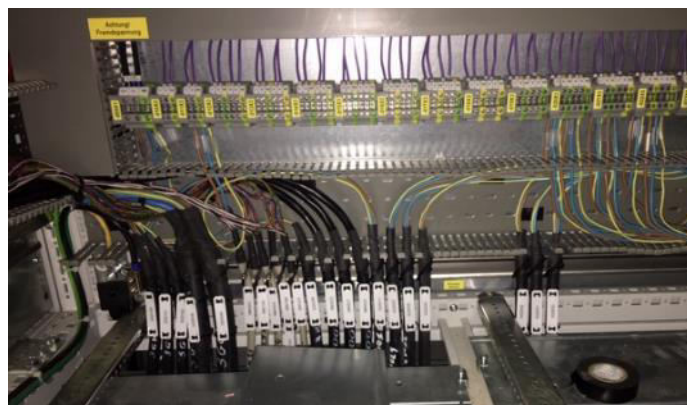
MV CABLES CONNECTION ON VFD PANELS



MEDIUM VOLTAGE CABLES LAYING



MV CABLES CONNECTION ON TRAF0



VFD PANEL CONNECTION



JUNCTION BOX CONNECTION AND SUPPLY

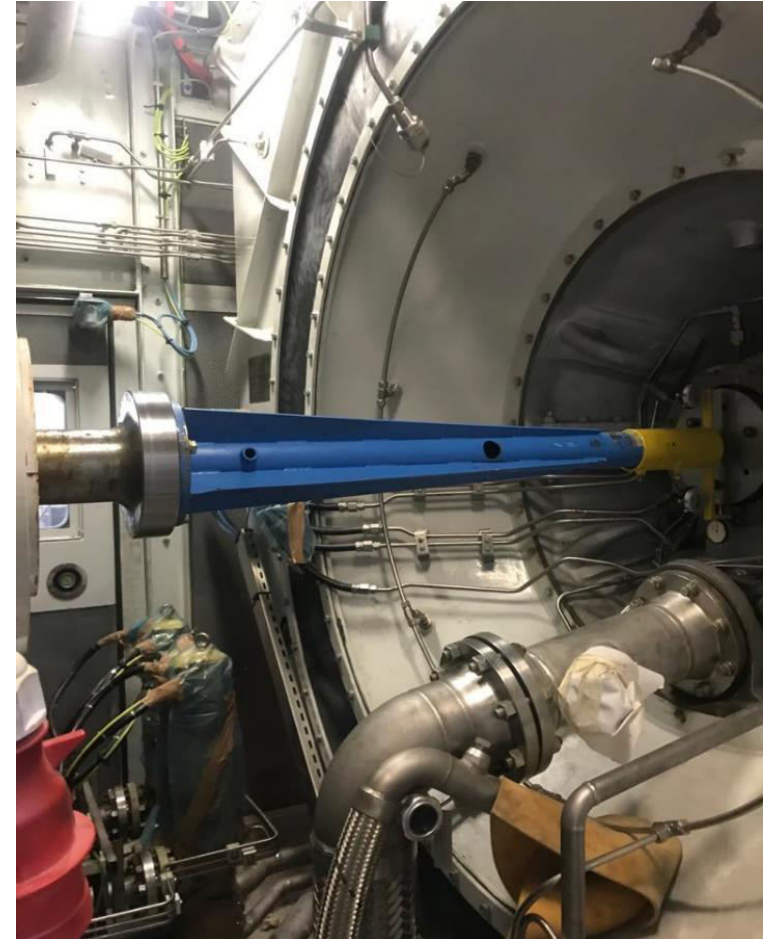
KOLN (Germany) – MS5002E + GENERATOR – MAJOR OVERHAUL AND TRAIN ALIGNMENT – HP/LP SHAFT
ENGINE STATOR vs ROTOR - MAINTENANCE



GENERATOR



TURBINE



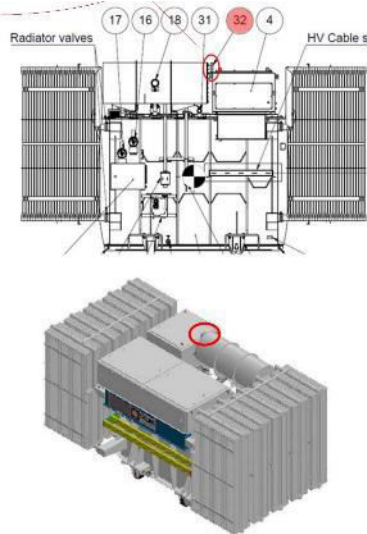
TRAIN ALIGNMENT

KRUMMHORN (Germany) – ICL COMPRESSOR – ASSISTANCE after Turn-Key installation

VFD COOLING SYSTEM WITH SHELTER PROTECTION



ICL COMPRESSOR



MV termination – Step Up Trasformer



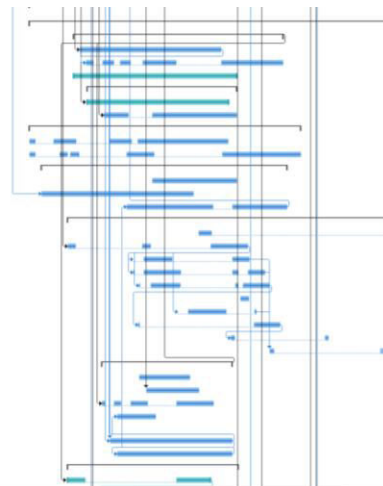
NUOVO PIGNONE – SLOVACCHIA EUSTREAM (Slovak) – 2xPGT25

TURN KEY INSTALLATION OF:

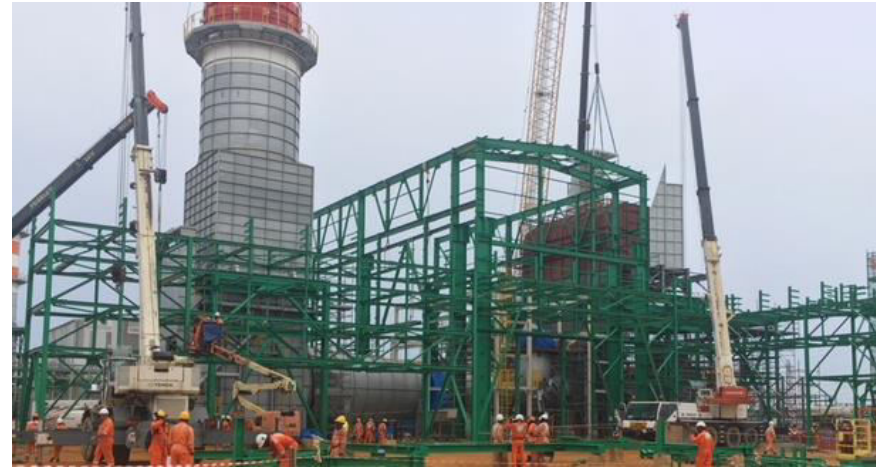
- EQUIPMENT
- DUCT
- BUILDING
- GAS COOLER
- PIPING
- CABLES TRAY
- CABLES LAYING
- PANELS
- TEST AND CERTIFICATION
- PLANNING



ID	DESCRIPTION	UNIT	START	END	PERCENTAGE
131	MECHANICAL INSTALLATION UNIT 2	314.5 g	sub 08/09/18	dom 07/07/19	99%
132	SKID GT E C C	174.25 g	jun 15/10/18	sub 06/04/19	100%
133	Preparation of skidding system	115 g	sub 20/10/18	gio 14/02/19	100%
134	Turbine and Compressor installation	165 g	gio 25/10/18	sub 06/04/19	100%
135	Turbine and Compressor preliminary alignment	135 g	jun 15/10/18	mer 27/02/19	100%
136	AUX SKID	122.25 g	ven 26/10/18	mer 26/02/19	100%
137	Installation seal gas booster	119 g	ven 26/10/18	mer 20/02/19	42
138	Installation of Synthetic & Mineral Oil Vapour Separator	84.75 g	ven 09/11/18	mar 26/02/19	42
139	COOLERS	230.5 g	sub 08/09/18	sub 20/04/19	100%
140	Installation of structure	115 g	sub 08/09/18	mar 19/02/19	100%
141	Installation of sunshade	115 g	sub 08/09/18	sub 20/04/19	100%
142	CARPENTERS AND WALKWAY	207.75 g	mar 18/09/18	mar 09/04/19	100%
143	Installation ladders & walkways GT/CC	64.75 g	mar 19/12/18	mar 26/02/19	100%
144	Installation of Exaust carpentry first phase	125 g	mar 18/09/18	mar 22/01/19	39H+15 g
145	Installation of Exaust Carpentry second phase	115 g	mar 27/11/18	mar 09/04/19	163
146	PIPING	280.75 g	mar 10/10/18	dom 07/07/19	95%
147	Installation of tear down materials	15 g	sub 26/02/19	dom 07/07/19	75%
148	Installation of piping supports	48.75 g	mer 10/10/18	gio 07/02/19	149H+1 g
149	Installation of interconnecting piping - Mineral Oil	30.25 g	jun 03/12/18	sub 09/01/19	148
150	Installation of interconnecting piping - Synthetic oil	45 g	jun 03/12/18	gio 21/03/19	148
151	Installation of interconnecting piping - Seal Gas	45 g	sub 08/12/18	jun 25/03/19	148H+5 g
152	Installation of interconnecting piping - Firefighting	8 g	ven 01/03/19	ven 08/03/19	100%
153	Installation of interconnecting piping - Fuel gas	35 g	mer 06/01/19	gio 14/01/19	148
154	Installation of interconnecting piping - Air	25 g	ven 07/12/18	mer 03/04/19	151
155	Hydraulic - Blowing Test	5 g	ven 22/02/19	jun 13/05/19	154
156	Insulation - Heat Tracing, Themic Protection	15 g	mar 26/03/19	gio 04/07/19	149,150,1
157	DUCT - INLET / EXHAUST - FILTER HOUSE - ANTICISE SYSTEM	106.25 g	mer 07/11/18	ven 22/02/19	100%
158	Installation structure & supports Filter House	35 g	sub 08/12/18	sub 19/01/19	100%
159	Installation Filter House expansion joint	37 g	ven 14/12/18	sub 26/02/19	25
160	Installation Inlet Duct	58 g	mer 07/11/18	gio 07/02/19	112
161	Installation ventilation exhaust duct turbine (ventilation fan + expansion joint + silencer)	35 g	jun 19/11/18	ven 21/12/18	162
162	Installation of Duct Exaust dug SCM803642 sheet 1	99 g	mer 13/11/18	ven 22/02/19	14,73
163	Installation of Duct Exaust dug SCM803642 sheet 2-8	92.55 g	jun 19/11/18	ven 22/02/19	162
164	VENTILATION SYSTEM	141 g	mer 10/10/18	mer 27/02/19	100%
165	Installation FAN ventilation(MAN+Aux+Emergency)	45 g	mer 10/10/18	mar 05/02/19	132



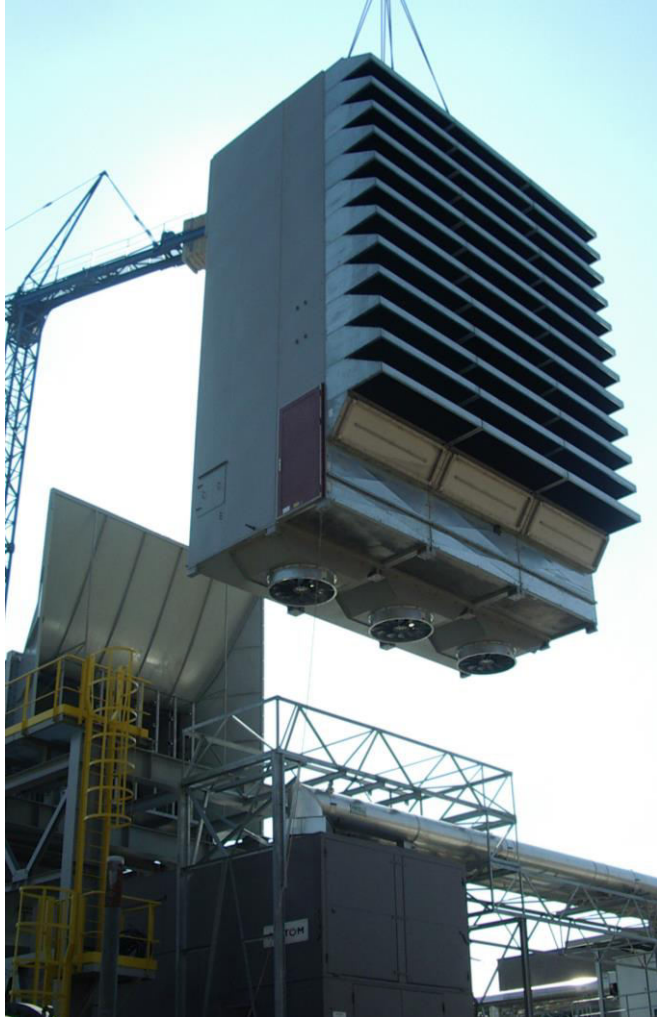
DJENGO POINT NOIRE (Congo) SAIPEM CEC POWER PLANT
GAS TURBINE ANSALDO AE94.2 - 150MW – GENERATOR + BY PASS STACK + STEP UP TRAF0 +
BUILDING



**DJENGO POINT NOIRE (Congo) SAIPEM CEC POWER PLANT
GAS TURBINE ANSALDO AE94.2 - 150MW – GENERATOR + BY PASS STACK + STEP UP TRAFO +
BUILDING**



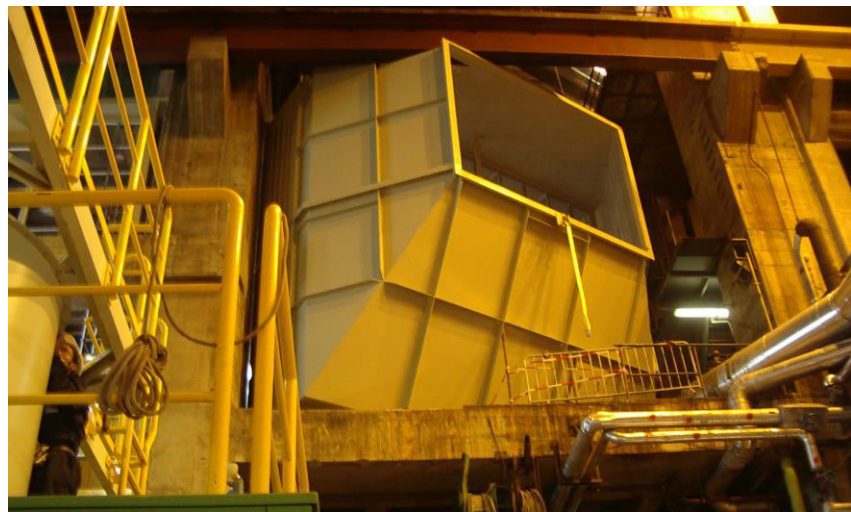
NOVARA (Italy) - NOVEL
GAS TURBINE GENERAL ELECTRIC 6FA + ALSTOM POWER GENERATOR



TERMOLI (Italy) - TERMOLI ENERGIA - SIEMENS
STEAM TURBINE CCGT 250MW



GENT (Belgium) – TURBOMACH ROLLS ROYCE TRENT 60 + BRUSH GENERATOR

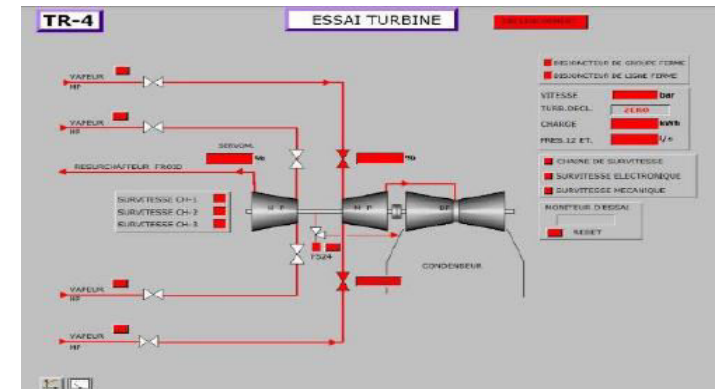


IMOLA (Italy) - TURBOMACH - ROLLS ROYCE RB211 + BRUSH GENERATOR



MARSAT (Algeria) – POWER GENERATOR MAJOR OVERHAUL

ANSALDO STEAM TURBINE 164MW & BOILER - SONELGAS



MARSAT(Algeria)
POWER GENERATOR MAJOR OVERHAUL



INEOS CHEMICAL PLANT – HULL – UK
Installation and commissioning of n.4 new steam turbines

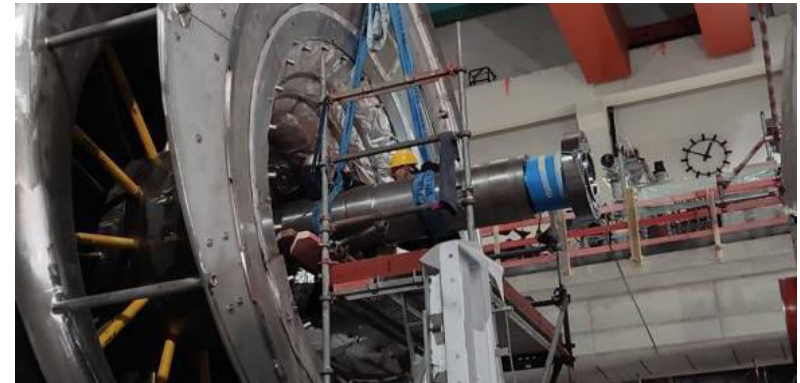
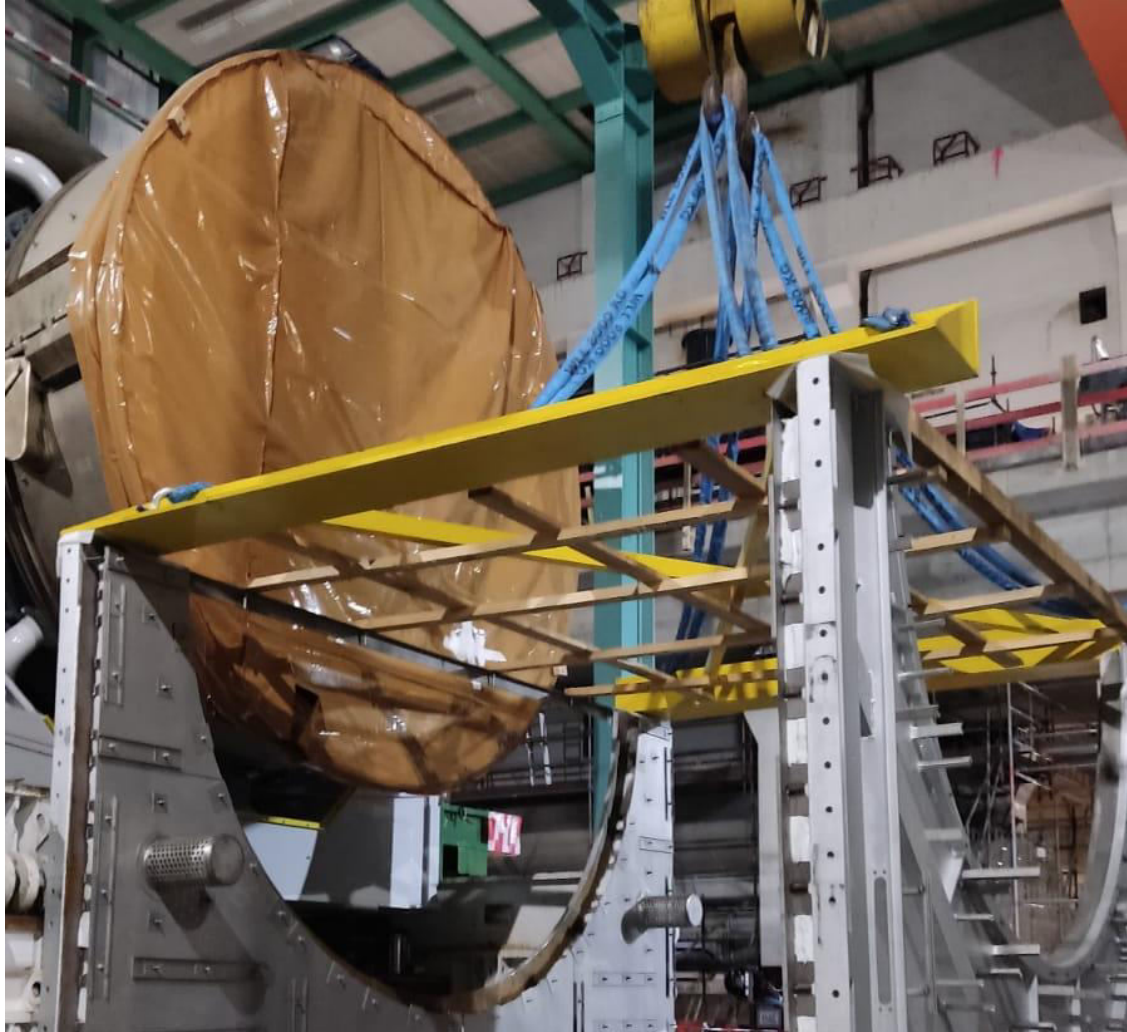


IGGESUND PAPERBOARD – WORKINGTON (UK)

Steam turbine major maintenance and generator inspection



SWM GuD1neu – MUNICH (Germany)
Multidisciplinary Installation of n.1 GE POWER
GAS TURBINE MOD. FRAME9 E04



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Director of Ram Power UK Services Ltd



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Business development manager Ram Power UK Services Ltd



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